A MEMORIAL of the late Dr. George Brown Goode, together with a selection of his papers on museums and on the history of science in America, has been published in the form of a volume by the Smithsonian Institution. Dr. Goode was held in the highest regard in all places where natural science is cultivated, and this account of his life and services will be cherished by everyone who is aware of the influence he exerted upon museum development. The addresses delivered at the memorial meeting held at the U.S. National Museum are printed, and also an appreciative notice of his life and services to science, by Prof. S. P. Langley. Eight papers are published in the volume, most of them dealing with museum administration and the pursuit of natural knowledge in America. There is much of interest in these papers concerning the growth of scientific institutions in the United States, and united they form an appropriate memorial of an accomplished man.

AN interesting synthesis of some aromatic aldoximes by means of fulminating silver is described by Messrs. R. Scholl and E. Bertsch in the current number of the *Berichte*. If a polyhydroxylic derivative of benzene is dissolved in ether, some fulminating silver suspended in the solution, and hydrochloric acid led slowly into the well-cooled solution, the silver fulminate disappears and the hydrochloride of the new aldoxime crystallises out. The method has been successfully applied to resorcinol, orcinol, pyrogallol and phloroglucinol.

THE same number of the *Berichte* contains an account by C. Harries of the preparation and properties of the dialdehyde of succinic acid. The aldoxime of this aldehyde can be prepared by the method of Ciamician and Dennstedt from pyrrol and hydroxylamine, and this, suspended in water and treated with nitrous acid, gives an aqueous solution of the new dialdehyde from which the pure substance can be isolated with some difficulty by fractional distillation. Succinic aldehyde is the first member of the aliphatic dialdehydes to be isolated in a pure monomolecular form, and is of interest as being the starting-point for the preparation of the three heterocyclic rings, furane, thiophene and pyrrol. The ready convertibility of this aldehyde into derivatives of these three rings is shown experimentally in the present note.

THE additions to the Zoological Society's Gardens during the past week include a Rhesus Monkey (*Macacus rhesus*) from India, presented by Mr. W. B. Bingham; an Otter (*Lutra vulgaris*, ♂), British, presented by Mr. W. Radcliffe Saunders; twelve Black Vultures (*Cathartes atratus*) from America, presented by Dr. E. A. Goeldi; two Cambayan Turtle Doves (*Turtur cambayensis*), a White-collared Ouzel (*Merula albicincta*), a Large Andaman Parrakeet (*Palaeornis magnirostris*), a Tickell's Flower-pecker (*Dicaeum erythrorhynchus*), a Cinnamon Tree Sparrow (*Passer cinnamoneus*), a Rufous-breasted Accentor (*Tharrhaleus strophiotus*), a Black-throated Accentor (*Tharrhaleus atrigularis*), an Eastern Meadow Bunting (*Emberiza stracheyi*), four White-capped Buntings (*Emberiza stewarti*), two Indian Button Quails (*Turnix tanki*) from British India, presented by Mr. E. W. Harper; a Northern Mocking-bird (*Mimus polyglottus*) from North America, presented by Mr. H. C. C. Gülich; an Antillean Boa (*Boa diviniloque*) from the West Indies, presented by Mr. D. F. Mackenzie; a Sykes's Monkey (*Cercopithecus albigularis*) from East Africa, a Chacma Baboon (*Cynocephalus porcarius*) from South Africa, a Smooth-headed Capuchin (*Cebus monachus*) from South-east Brazil, two Wanderoo Monkeys (*Macacus silenus*, ♂ ♀), a Banded Parrakeet (*Palaeornis fasciata*), a Ring-necked Parrakeet (*Palaeornis torquata*), two —— Snakes (*Cerberus rhynchops*), thirteen —— Fish (*Saccobranchus fossilis*) from India, a Golden-naped Amazon (*Chrysotis auripalliata*) from Central America, a Leadbeater's Cockatoo (*Cacatua leadbeateri*) from Australia, a Shining Parrakeet (*Pyrrhulopsis splendens*) from the Fiji Islands, a Blue-winged Green Bulbul (*Chloropsis hardwicki*) from British India, two Japanese Terrapins (*Clemmys japonica*) from Japan, a Blue Lizard (*Gerrhonotus caeruleus*) from Western North America, deposited; two Chinchillas (*Chinchilla lanigera*) from Chili, purchased; a Llama (*Lama peruana*), a Hybrid Lemur (between *Lemur xanthomystax* and *L. brunneus*), born in the Gardens.

OUR ASTRONOMICAL COLUMN.

OBSERVATIONS OF NOVA PERSEI.—In the *Mem. de la Soc. degli Spett. Ital.* (vol. xxx. pp. 77–90), Prof. A. Ricco describes the observations of the brightness and spectrum of Nova Persei, made at the Catania observatory. The various magnitudes given are similar to those already published by other observers, the light curve showing distinct oscillations from March 8.

The spectra were observed with the Merz refractor of 0·33 metre aperture and McClean star spectroscope, and photographs obtained with the photographic equatorial and Vogel spectrograph, the spectra being about 43 millimetres long, with exposures of one hour. The wave-lengths are given as follows:

3933	K	4179		4541		4923	
3969	H	4235		4587		5019	
4015		4310		4609		5168	
4039		4341	Hγ	4636		5300	
4071		4412		4681		5551	
4102	Hδ	4493		4862	Hβ	5627	

COMET 1901 *a*.—The comet is now getting so far away from the sun that it is in all probability beyond the reach of any but the largest instruments. The following ephemeris may be of service to those having sufficient optical power:—

Ephemeris for 12h. Berlin Mean Time.

1901.	R.A. h. m. s.	Decl. ° ′
June 21	7 24 56	+10 8·3
23	28 6	10 16·1
25	31 9	10 23·1
27	34 7	10 29·5
29	7 37 0	+10 35·2

NEW VARIABLE STARS:—

74, 1901 (Persei). Herr P. Guthnick, of Bonn, finds that the star

R.A. = 3h. 2·7m.
Decl. = + 44° 29′ (1900)

is variable to the extent of 0·6 magnitude. From the table of magnitudes given the period would appear to be about thirty days, but the gaps are too long for any accurate estimate. This star is the intensely orange-coloured χ Persei.

75, 1901 (Persei). Herr Fr. Deichmuller, of Bonn, finds variability in the star 36 Flamsteed, amounting to about 0·5 magnitude. The observations indicate a change from 4·92 to 5·65 magnitude twice a month. The variability of this star is confirmed by Herr Guthnick (*Astronomische Nachrichten*, Bd. 155, No. 3720).

FORMS OF IMAGES IN STELLAR PHOTOGRAPHY.—In the *Annals* of Harvard College Observatory (vol. xli. No. vi. pp. 153–187), Mr. E. S. King, the observer in charge of the photographic department at that institution, describes the various disturbing causes which affect the forms of star images obtained by photographic methods with different systems of following. The chief of these are irregularities of the driving clock, differential refraction, and flexure. To correct these errors two methods of guiding have been employed, the plate being moved by suitable adjusting screws, either with the telescope or independently of it, the latter method being preferred, as it permits, not only corrections in two coordinates perpendicular to each other, but also a rotary movement for the elimination of flexure and differential refraction.

The investigations described have been in hand since 1896, when they were undertaken in consequence of difficulties occurring in the observation of the Algol variable W Delphini

at low altitudes. A fourth source of error, in the adjustment of the polar axis, must be also considered, and it is practically important to do this, inasmuch that by an accurate knowledge of the conditions it is possible to introduce such an amount of error from this and the clock rate as to partially eliminate the variable errors due to flexure, &c. After insisting on the necessity of the clock having as continuous and regular motion as possible, it is pointed out that the correct rate for following is not sidereal time, as is commonly supposed, but a variation from this depending on the latitude and the declination of the object. The equations of condition are developed for determining the proper following rates for various localities. The actual path of a star on the plate as affected by refraction may be either a parabola, hyperbola, ellipse or circle. The effect of error of the polar axis is an elliptical form of star image, varying with the declination. The analytical investigation of this shows that the refraction in declination can to a great extent be eliminated by an alteration of the inclination of the axis; this is now provided for in many instruments by the frequent shifting of the polar axis by known amounts. The correction for the right ascension component is more complicated, and tables are given showing the changes per hour for various hour angles. Reproductions from photographs taken with clock rate adjusted for refraction and polar axis elevated are shown. In considering the effects of flexure three kinds are discussed, affecting either the polar or declination axes, and the tube. Various methods actually in use at the Observatory for determining the flexure are then described in detail, also the exact method of varying the load of the control pendulum governing the driving clock. The effects of temperature on the trails have also been considered, and methods for its elimination.

As the result of the investigation, it is found that plates of 60 minutes' exposure may be taken without visual following, which shall have images not exceeding 0·01 cm. in elongation due to the clock, and a photograph of the cluster in Hercules taken in this way is reproduced. Several special applications of these principles are then discussed, including the important one of photographing stellar spectra with the objective prism, where the spectrum lines are often very oblique, thus lessening the dispersion and possibly the definition. A table is calculated showing that this may be corrected by a slight rotation of the prism for each star.

Several methods for the mechanical correction of flexure are indicated, and finally the special means for correcting proper motions of the object under examination are considered, examples of the photographs of Eros being given in illustration.

THE SIXTH ANNUAL CONGRESS OF THE SOUTH-EASTERN UNION OF SCIENTIFIC SOCIETIES.

THIS Congress was held at Haslemere and Hindhead on June 6–8, and delegates and members representative of most of the affiliated societies upon the Union's list were in attendance. There were, further, a goodly number of visitors present, attracted to a large extent by the unbounded hospitality of the residents and admirable arrangements of the local committee, which were most elaborate and highly successful.

The proceedings were opened by Prof. G. B. Howes, F.R.S., who, as the retiring president, in a few apposite remarks resigned the chair to his successor, Mr. G. A. Boulenger, F.R.S., who then delivered the annual address. Taking for his subject the field-work and results of experiment of the past quarter of a century upon the European Reptilia and Batrachia, he led up to the formulation of a revised list of the British species. He then dealt in greater detail with those genera and species inhabiting the immediate neighbourhood of the meeting, special interest attaching to some facts involving the natterjack and Gilbert White's area of observation, in their relation to the topic of batrachian migration; and he seized the opportunity to enlist the services of local naturalists in the study of this problem, in the better working-out of the varieties of the common viper, and in other allied herpetological matters for which the study of the local fauna presents a favourable opportunity. Beyond this the address, which was admirably suited to the occasion, contained historical records of permanent value and some wholesome advice to the collector and would-be specialist, based upon the author's great experience of herpetological affairs.

The meetings for strictly scientific business were confined to the Friday and Saturday mornings, five papers being read. An unusual departure, however, was entered upon, in the substitution of three short addresses for the musical entertainment customary on similar occasions at the evening *soirée*. The reception at this was by Sir F. Pollock, Bart., and in his capacity as president of the local natural history society he delighted those present with a felicitous speech. The short addresses which followed this were by Mr. G. F. Chambers, on "An Eclipse Trip to Portugal in 1900"; by Mr. Oswald Latter, of the Charterhouse, on "Cuckoos' Eggs"; and by Dr. Jonathan Hutchinson, F.R.S., on "Habit and Discipline in their Influence on Organisation." The latter, on the lines of the famous Sunday afternoon discourses with which the indefatigable doctor is in the habit of improving the minds of his friends and visitors, both at Haslemere and in London, was noteworthy for the attempt to prove that the orbital bulla of the hippopotamus, shown to be different in origin in each of its two stages of development, is, like that of the gavial, functional as a support for the eye during protraction and elevation; and for the thesis that in human affairs the poet must precede the philosopher.

Dr. Hutchinson further contributed to the educational success of the meeting by entertaining the assembled guests at his private museum at College Hill, the originality of the plan of arrangement of which was much admired; and, with characteristic versatility, he followed this up by leading the way to Lord Tennyson's abode at Blackdown, before which, after a visit to its interior, verses appropriate to the occasion were by him and others recited.

Of the papers read at the ordinary meetings, the first, by the Hon. Rollo Russell, on "Moisture in the Atmosphere," is the embodiment of a lengthy series of experimental and statistical observations which will be of much service for reference. This was followed by a paper by Miss E. Sargent on "Seedlings," chiefly noteworthy for some observations made in conjunction with "a colleague," in which a downward displacement of the seed by forcible contraction of the roots was fully described and illustrated by an ingenious model. Prof. Howes concluded the first morning's work with a short lecture, which he said was pertinent to his presidential address of the previous year. He dealt with the principle of "convergence," as applying more especially to recent work among the Mammalia and Batrachia ecaudata, and with "substitution" in its bearings on the study of the electrical organs of fishes.

The afternoon of Friday was given to the reading of a couple of papers on "The Teaching of Nature Knowledge in Elementary Schools," by Miss M. A. Buckton, who has had considerable experience of elementary school-work both on the Continent and at home, and by Prof. A. D. Hall, principal of the Wye Agricultural College. Upon these a discussion arose, which, for lack of organisation beforehand and time for extension, fell short of what might have been an important issue.

The concluding paper of the meeting was by Mr. S. T. Dunn, secretary to the Director of Kew Gardens, under title "The Origin of Certain Weeds." The author read an account of the geographical distribution of certain dead nettles, and in the short discussion which ensued doubt was expressed whether he had pointed to anything which does not apply to certain other British plants well known, while there arose a difference of opinion which left the audience in uncertainty as to what constitutes a "weed."

At the meeting of delegates, which closed the proceedings, the question of subscription was discussed; and conspicuous among the motions passed was one of appeal to the Brighton Town Council, who are about to take the famous Aquarium of that town in hand for development, to make adequate provision for scientific investigation and work in economics, in a manner which was agreed upon.

The exquisite country in which the meeting was held and the delightful weather which prevailed proved both beneficial and attractive, and not the least pleasurable feature of the Congress was the manner in which the influential residents, both by their generous hospitality and personal interest, contributed to its success, while the vociferous croaking of some introduced frogs came as a most appropriate accompaniment to the proceedings.

The Congress for 1902 is to be held at Canterbury, under the presidency of Dr. Jonathan Hutchinson, F.R.S., who has served the recent one so well.